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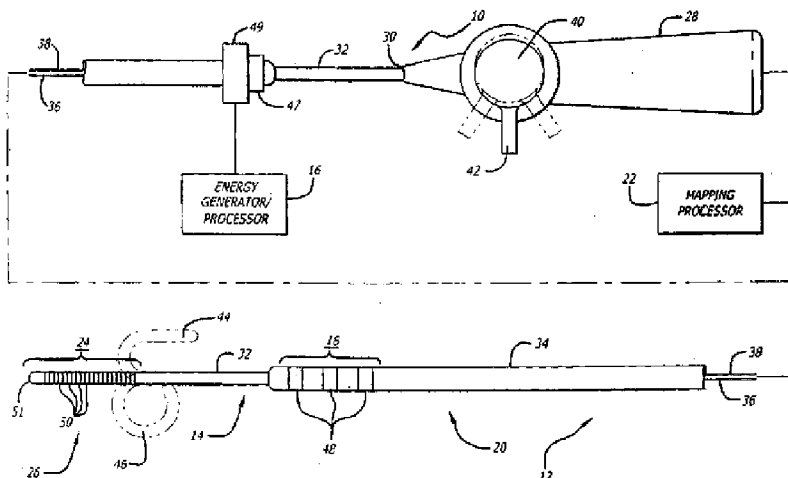
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- (71) Applicant: **CARDIAC PACEMAKERS, INC.** [US/US]; **4100 Hamline Avenue North, St. Paul, MN 55112 (US).** (88) Date of publication of the international search report: **1 May 2003**
- (72) Inventors: **BOWE, Wade, A.**; 30891 Corte Arroyo Vista, Temecula, CA 92591 (US). **HALL, Jeffrey, A.**; 104 Maple Trace, Birmingham, AL 35244 (US). *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **TWIN COAXIAL CATHETERS FOR RF PULMONARY VEIN ABLATION**



(57) Abstract: A catheter system includes an outer catheter having a lumen and an inner catheter sized to fit within and slide through the lumen of the catheter. Both catheters may be introduced into an anatomical site through a single introduction path. At the distal-end region of each catheter is an electrode system. One electrode system is for mapping the site; the other is for ablating the site. The distal-end regions of one or both of the catheters may be linear shaped, circular shaped, or radially expandable. When the catheter system is deployed the electrode systems carried by the distal-end regions of the mapping catheter and the ablation catheter are movable relative to each other and tend to lie in planes substantially parallel to each other. Another catheter system includes two separate electrode systems on a single expandable member shaped so that both electrode systems come in contact with separate sites.

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/15314

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B18/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 755 760 A (GAISER JOHN W ET AL) 26 May 1998 (1998-05-26) see ref sign 49,52 figure 2	1,19
Y	---	2,3,26, 27
Y	US 5 928 163 A (DIAMOND BRUCE H ET AL) 27 July 1999 (1999-07-27) see ref sign 22a,22b figure 4C -----	2,3,26, 27

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

21 October 2002

Date of mailing of the international search report

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

PAPONE, F

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 02/15314

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 33-49, 60  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-3, 19, 26, 27

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-3;19,26,27

system comprising two catheters, one sliding within the other, each having an electrode system

2. Claims: 1,4,9;19,20-25,28-31

a catheter system consisting of one outer and one inner catheter wherein a "tendon" (pull wire) bends the distal end of the outer catheter

3. Claims: 1, 5-8,10-13

a catheter system consisting of one outer and one inner catheter wherein the outer catheter has a preshaped curve

4. Claims: 1,14-16,

a catheter system consisting of one outer and one inner catheter wherein the inner member has outwardly bending segments at distal end

5. Claims: 1,17,18;19,32

catheter system consisting of one outer and one inner catheter wherein a generator and a signal processor are used

6. Claims: 50-59

A catheter having a circumferentially expandable member with first and second electrode systems

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/15314

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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